

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims

What is Claimed is:

1. (Currently amended) A polymeric particle comprising a pharmaceutically acceptable polymer core, a bioactive agent, and a surface-altering agent disposed on the surface of the core, wherein the surface-altering agent that enhances the average rate at which the particles or a fraction of the particles moves in mucus by at least 5-fold compared to the same particle[[s]] except without a surface-altering agent disposed on the surface,

wherein the surface-altering agent reduces the overall charge on the surface of the polymeric particle and enhances the hydrophilicity of the surface of the polymeric particle compared to the same particle except without a surface-altering agent disposed on the surface,

wherein the surface-altering agent comprises polyethylene glycol having a molecular weight of about 2-3 kDa, and

wherein the polymeric particle is less than about 1 micron in diameter.

2. (Original) The polymeric particle of claim 1, wherein the bioactive agent is encapsulated in the polymer core.

3-4. (Cancelled)

5. (Currently amended) The polymeric particle of claim 1, wherein the pharmaceutically acceptable polymer is a poly(D,L-lactic-co-glycolic) acid, polyethylenimine, ~~dioleyltrimethylammoniumpropane~~dioleyltrimethylammoniumpropane/dioleyl-sn-glycerolphosphoethanolamine, poly(anhydrides), or a polymer formed from clinically approved monomers.

6. (Cancelled)
7. (Original) The polymeric particle of claim 1, wherein the bioactive agent is a therapeutic agent or an imaging agent.
8. (Original) The polymeric particle of claim 7, wherein the therapeutic agent is a DNA, an RNA, a small molecule, a peptidomimetic, or a protein.
9. (Withdrawn - Currently amended) The polymeric particle of claim ~~[[7]]~~1, wherein the ~~imaging~~ bioactive agent is a diagnostic agent.
10. (Withdrawn) The polymeric particle of claim 7, wherein the imaging agent further comprises a detectable label.
11. (Cancelled)
12. (Original) The polymeric particle of claim 1 further comprising an adjuvant.
- 13-16. (Cancelled)
17. (Original) The polymeric particle of claim 1, wherein the polymeric particle is less than 200 nm in diameter.
18. (Original) The polymeric particle of claim 1, wherein the polymeric particle passes through a mucosal barrier at a greater rate than a polystyrene particle of a similar size.
- 19-20. (Cancelled)

21. (Previously presented) A pharmaceutical composition comprising the polymeric particle of claim 1 and a pharmaceutically acceptable carrier.
22. (Previously presented) An inhaler comprising the polymeric particle of claim 1.
- 23-25. (Cancelled)
26. (Currently amended) The polymeric particle of claim 1, wherein the average rate at which the particles ~~or a fraction of the particles~~ moves in mucus ~~as is~~ at least 10-fold greater than the rate of the same particle[[s]] except without the surface-altering agent disposed on the surface.
27. (Cancelled)
28. (Currently amended) The polymeric particle of claim 1, wherein the average rate at which the particles ~~or a fraction of the particles~~ moves in mucus is determined by ensemble mean square displacement in pig gastric mucus.
29. (Cancelled)
30. (New) The polymeric particle of claim 1, wherein the polyethylene glycol has a molecular weight of about 2 kDa.
31. (New) The polymeric particle of claim 1, wherein the polyethylene glycol has a molecular weight of about 3 kDa.
32. (New) The polymeric particle of claim 1, wherein the polyethylene glycol is attached to polyethyleneimine (PEI).

33. (New) The polymeric particle of claim 1, wherein the polymeric particle is less than about 500 nm in diameter.

34. (New) A particle comprising a pharmaceutically acceptable core, a bioactive agent, and a surface-altering agent disposed on the surface of the core, wherein the surface-altering agent enhances the average rate at which the particle moves in mucus by at least 5-fold compared to the same particle except without a surface-altering agent disposed on the surface,

wherein the surface-altering agent reduces the overall charge on the surface of the particle and enhances the hydrophilicity of the surface of the particle compared to the same particle except without a surface-altering agent disposed on the surface,

wherein the surface-altering agent comprises polyethylene glycol having a molecular weight of about 2-3 kDa, and

wherein the particle is less than about 1 micron in diameter.

35. (New) The particle of claim 34, wherein the bioactive agent is encapsulated in the core.

36. (New) The particle of claim 34, wherein the average rate at which the particle moves in mucus is at least 10-fold greater than the rate of the same particle except without the surface-altering agent disposed on the surface.

37. (New) The particle of claim 34, wherein the average rate at which the particle moves in mucus is determined by ensemble mean square displacement in pig gastric mucus.

38. (New) The particle of claim 34, wherein the therapeutic agent is a DNA, an RNA, a small molecule, a peptidomimetic, or a protein.

39. (New) The particle of claim 34, wherein the therapeutic agent comprises an siRNA.

40. (New) The particle of claim 34, wherein the polyethylene glycol has a molecular weight of about 2 kDa.
41. (New) The particle of claim 34, wherein the polyethylene glycol has a molecular weight of about 3 kDa.
42. (New) The particle of claim 34, wherein the polyethylene glycol is attached to polyethyleneimine (PEI).
43. (New) The particle of claim 34, wherein the particle is less than about 500 nm in diameter.
44. (New) The particle of claim 34, wherein the particle is less than about 200 nm in diameter.
45. (New) A pharmaceutical composition comprising the particle of claim 34 and a pharmaceutically acceptable carrier.